

Vol. V.

FEBRUARY, 1872.

No. 26.

THE AMERICAN PRACTITIONER:

A MONTHLY JOURNAL OF

MEDICINE AND SURGERY.

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LOUISVILLE, KY:
JOHN P. MORTON AND COMPANY,
PUBLISHERS.

THREE DOLLARS PER ANNUM

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THE AMERICAN PRACTITIONER:

A MONTHLY JOURNAL OF
MEDICINE AND SURGERY.

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FEBRUARY, 1872.

Certainly it is excellent discipline for an author to feel that he must say all he has to say in the fewest possible words, or his reader is sure to skip them; and in the plainest possible words, or his reader will certainly misunderstand them. Generally, also, a downright fact may be told in a plain way; and we want downright facts at present more than anything else.—RUSKIN.

Original Communications.

CHRONIC CYSTITIS IN THE FEMALE AND MODE OF TREATMENT.

BY THOMAS ADDIS EMMET, M. D.,

Surgeon to the New York State Woman's Hospital.

During the winter of 1858 I removed, through an artificial opening made in the vesico-vaginal septum, a calculus from the bladder of a patient in the Woman's Hospital. She had been an inmate of the institution several years before with a vesico-vaginal fistula, which had been closed previous to her discharge. As the bladder was in a diseased condition, by the advice of Dr. Sims, the artificial opening was left for the greater facility afforded in the treatment for restoring the organ to a healthy state. This idea was a new one to me at that time, and to Dr. Sims I believe is due the credit of the mode of treatment for cystitis in the female resulting from this cause. For the relief of a case of chronic cystitis following exposure and of long standing, I subsequently made an artificial vesico-vaginal fistula, with the view of giving rest to the

organ by the free escape of urine. It was thought that by thus removing the exciting cause of the persistent tenesmus the hypertrophy of the walls of the bladder would subside.

This operation and view of treatment was considered original, and during the past nine years it has seldom happened that some case has not been under treatment by this method in the Woman's Hospital.

Prof. Willard Parker, of this city, presented at the annual meeting of the New York State Medical Society for 1867 a paper on "Cystitis and Rupture of the Bladder treated by Cystotomy," which was published in the Transactions for that year. The Doctor states that on January 3, 1846, he performed lithotomy on a male. He was unable to remove the stone, but the cystitis was relieved by the free escape of the urine through the opening. At the end of three months a fresh attack of cystitis came on, the kidneys became involved, and death resulted. This case seems to have been instrumental in drawing his attention to the subject. He mentions performing the same operation subsequently, but the history of the case and result is imperfect beyond the statement that "in a few months he had nearly recovered, and some months after he called upon me, and looked as well as any one could at his time of life."

November 23, 1850, Professor Parker operated at Bellevue Hospital on a case of chronic cystitis in the male. He states: "The object in view was to open a channel by which the urine could drain off as fast as secreted, and thus afford rest to the bladder, the first essential indication in the treatment of inflammation." The conception of treatment was perfect, and there has been no advance made since in the pathology. The patient died in a few days, and the autopsy revealed the fact that the kidneys had undergone degeneration. This case was published in the New York Medical Journal for July, 1851, vol. VI., and reported at length by Stephen Smith, M. D., assistant surgeon to the hospital. Although a favorable result was not obtained, it clearly establishes Dr. Parker's

claims to priority for this mode of treatment of cystitis in the male. Previous to the reading of this paper before the State Society in 1867 I had been ignorant, however, of his views on this subject; and it is only a short time since that I have been able to obtain a copy of the journal containing the history of the case. Prof. Eve, of Nashville, reports the benefit derived from this mode of treatment in the male, after an operation performed in 1866, and the case is presented in Dr. Parker's paper.

At the last meeting of the State Society, February 7, 1871, Dr. Bozeman presented an interesting paper on "Urethrocele, Catarrh, and Ulceration of the Bladder in Females," which was published in the New York Journal of Obstetrics for February, 1871.

Dr. Bozeman details the history and successful result of an operation for the relief of cystitis performed January, 1861, the artificial opening having been closed the following June. The patient was cured; and nine years after the operation had had no return of the disease. It is stated: "To Prof. Willard Parker is due the suggestion of opening the male bladder for the relief of catarrh, and this encouraged me to extend the practice to the female bladder, as I have described. Dr. Emmet and other American surgeons have *since* adopted the practice in case of vesical catarrh in the female, and I doubt not with equal success." . . . "Delay in the report of my case of ulceration was due to the suspension of all medical journals in the South during the war," etc. This statement is unfortunately calculated to give the impression that the American surgeons who have practiced this mode of treatment since 1861 were indebted to Dr. Bozeman. With all due credit, this is not correct, as until his paper was presented he had given the profession no opportunity of knowing that he had ever operated. He has certainly not done justice to himself in so long delaying his claims; for he could scarcely be ignorant that this had been the practice at the

Woman's Hospital previous to and from the time of his coming to New York immediately after the war. I may also state that several cases of cystitis treated by this plan are detailed in my work on "Vesico-vaginal Fistula," published in July, 1868, and to his pen I have always accredited a flattering review of the book in one of the journals of this city.

Since the case referred to, from which the stone was removed in 1858, this mode of practice has been followed in similar cases, and the principle fully recognized. During the summer of 1861 I operated for the first time on a case of chronic cystitis in the female. The opening soon closed, and no improvement in the condition of the patient took place. I shortly afterward made a larger opening, through which the urine freely escaped. Ten months later I closed the artificial opening, as the thickened condition of the bladder had then disappeared. I have never seen a case of disease of the bladder as extensive as this was without the existence of any kidney complication. The mucous membrane of the bladder had, to a great extent, been lost, and the walls had become so hypertrophied that the bladder, as a hard mass, could be felt contracted behind the pubes, and was exceedingly tender on pressure. This case had been of many years' standing, and her suffering had made a wreck of both body and mind. She came under my observation frequently until some two years ago, since which time I have lost sight of her; but I can vouch for the fact that the bladder had remained in a healthy condition for eight years after the operation. I regret that the notes of this case, as well as of several others which occurred in my private practice, should have been lost.

At a meeting of the New York Obstetrical Society, held by invitation of Dr. L. A. Rodenstein in December, 1870, I presented the history of a case which I had just operated upon by making an incision transverse to the axis of the vagina, and in which an excessive hemorrhage had occurred. Among the invited guests present was my friend Prof. James

P. White, of Buffalo, who, in some remarks addressed to the Society, reminded me that he had assisted me at the operation in 1861, and, by a curious coincidence, was, I believe, present at the final closure.

During the autumn of 1862, shortly after her arrival in this country, an English woman, suffering from chronic cystitis, was admitted into the Woman's Hospital. She refused to submit to any surgical procedure, and shortly afterward died in consequence of the diseased condition of the kidneys. I mention this patient's case because she had been for some time under the care of Sir James Y. Simpson previous to leaving Great Britain, and the chief objection made to the operation was that so high an authority as Prof. Simpson had never intimated the necessity for such a procedure. The credit of this mode of treatment has lately been claimed for Prof. Simpson by Mr. Lawson Tait. Whether the idea after this date occurred to him, or that he was really indebted to this country for it, is of little bearing; but by this case the fact is proved that previous to the summer of 1862 he was ignorant of the method, and treated his cases simply by injections into the bladder.

Cystitis is of frequent occurrence from the too early closure of a vesico-vaginal fistula, resulting from parturition and before the tissues have regained a healthy condition, or as a result of failure in the operation to approximate perfectly the edges along the bladder surface, and thus leaving some denuded portion exposed to the action of the urine. I have operated some fourteen times for the removal of calculi from the female bladder. Nearly all these cases had been operated on for the closure of a vesico-vaginal fistula by other surgeons or by myself. In nearly every instance the cystitis was of sufficient extent to necessitate leaving the opening unclosed after the removal of the stone. In the worst cases means were adopted to keep the opening patent; in others of a milder character the same treatment was followed of washing

out the bladder several times a day as long as the injection could escape by the vagina. I believe in every instance the opening closed within two weeks where no means were employed to prevent it, and often it would do so in nearly the same time notwithstanding efforts to keep it open. These cases recovered ultimately, I believe without an exception, although in several instances where, on account of the urging of the patient, the opening had been closed too soon, the operation had to be repeated.

This operation is not advocated in all cases of cystitis, for it is a fortunate experience that a large number, if seen early, will readily yield to treatment. The necessary step in the beginning for success is, if possible, to recognize the exciting cause, that we may not lose time by treating the symptom alone. Neglect during labor to keep the bladder empty, exposure to cold, violence, and the habit of long retaining the urine, are the chief exciting causes of the most serious forms of chronic cystitis.

As some of the causes of irritability which may result in chronic cystitis, we may enumerate the different forms of dyspepsia from chronic derangement of the digestive organs, pressure of the uterus, and diseases of the rectum. With enlargement of the uterus, and partial or complete laceration of the perineum, this organ settles down on the floor of the pelvis, and by traction along the base of the bladder to the urethra chronic irritability of the bladder is frequently established. Retroversion of the uterus also, by which the cervix is thrown forward or upward, may excite the same condition. The existence of urethral polypi or other growths and ulceration of the canal must not be overlooked. It is necessary always to examine the condition of the rectum; for the presence of hemorrhoids will keep up irritation of the bladder as well as an unsuspected fissure.

I once gained great credit for the relief of an intractable case of irritable bladder by accidentally discovering a

fissure of the anus, and healing that by lacerating the sphincter. This patient had been under the care of several excellent practitioners, who had treated the uterine condition with the idea that the bladder difficulty was due to it. There was no indication of any rectal trouble beyond the existence of habitual constipation, and after a movement of the bowels the pain in the bladder was excruciating. She had suffered for years with dysmenorrhea, and the uterus was both enlarged and anteverted. After the fissure was healed the irritability of the bladder subsided, and without additional treatment the dysmenorrhea ceased and the uterus gradually lessened in size. It is often necessary to use some form of pessary, by which the neck of the uterus will be lifted up from the floor of the pelvis, even if it is anteverted by so doing, and the instrument should be so curved in front that all pressure at the urethra will be avoided. Irritation of the bladder is often excited by the relaxed condition of the upper portion of the vagina, which allows of chronic prolapse of the uterus. For its relief some modification of the operation for procidentia, by which the excess of vaginal tissue may be turned in, must be resorted to. With partial or complete laceration of the perineum, causing cystocele or rectocele, the appropriate operation on the vaginal wall will be necessary, as well as closure of the perineum.

So many causes exist by which a continued irritability of the bladder may be kept up until chronic cystitis has become established that it would be impossible to enumerate them at greater length. In the local treatment of the bladder the main dependence for relief rests in the frequent and proper manner of washing out the cavity. This operation the surgeon should perform himself if possible, using simply warm water in large quantities, to be injected with great care through a double catheter. After the injection, if the pain has been increased, it will be diminished greatly by a solution of morphine thrown into the bladder. Although the absorbing

power of the bladder is very limited in a healthy state of the organ, yet in this condition it is sufficient; for such treatment is often more efficacious than the use of suppositories or anodyne injections into the rectum. When the injection of water can not be borne without increasing the irritation of the bladder, or when there has been no marked improvement in the case after a reasonable time, the operation for establishing a fistula must be resorted to. The patient should at least be given the option, with a reasonable expectation of success on the one hand, or on the other inevitable death from disease of the kidneys; and the surgeon fails to perform his duty who does not present the case to the patient in this light. Unfortunately the disease is so insidious in its character that either relief is not sought until the condition of the bladder has become complicated, or the patient can not realize the danger with the necessity of resorting to any surgical procedure.

In the beginning, from the profuse local secretion with phosphatic urine, an accumulation of mucus takes place in the bladder. At first the urine is to a great extent evacuated, but in time the frequent efforts to force out the mucus induce inflammation and thickening at the neck of the bladder. As a consequence, a certain amount of stale urine is always retained, thus increasing the irritation of the bladder, until at length its parietes become thickened, its mucous membrane ulcerated, infiltration of urine to some extent occurs, abscesses form, and pelvic cellulitis is often occasioned. Long ere this the œdematosus and thickened condition of the tissues has so far obstructed the mouths of the ureters that the urine can no longer enter the bladder freely. The ureters often become enormously distended, the inflammation from the bladder extends along them to the kidneys, these organs at length become disorganized from pressure by the accumulation of urine, and death ultimately results from uræmic poisoning. Before the last stage of the disease has been reached, the poor woman

has experienced, through a series of years, an amount of suffering both of body and mind unequaled, I believe, by any other infirmity to which our humanity is subject. To alleviate this suffering these patients soon become addicted to the use of opium in some form, and the degree of tolerance of this drug which has come under my observation is almost incredible. I had a patient at one time suffering from chronic cystitis who had frequently taken ten grains of morphine at a dose; and she informed me that sometimes within the twenty-four hours half this quantity had to be taken, in addition, before her suffering could be palliated. I have frequently noticed a tendency to a mucous diarrhea, which could alone be attributed to the excessive use of this drug, and with the frequent desire to evacuate the bowels the condition of the bladder became greatly aggravated.

The operation, as practiced for the relief of cystitis, is in itself a simple one; and if resorted to before the disease has advanced so far as to involve the kidneys, is as free from risk as any in minor surgery. Even under the more unfavorable circumstances the risk of the operation is justifiable; life may be prolonged, and a great degree of comfort obtained, in allaying the persistent efforts to empty the bladder.

To the effects of the anaesthetic I attribute the chief danger attending the operation in the advanced stages of the disease, while from the irritable state of the bladder its use is indispensable. As the kidneys are barely able to perform their function sufficiently well to preserve life, the balance is easily lost in the attempt at elimination, and death from uræmia rapidly takes place. It has been denied that the kidneys take any active part in the elimination of ether from the blood, but I am convinced that this view is incorrect. I have often detected the smell of ether in my own urine hours after I had performed some prolonged operation, where it had been administered to the patient. I have had no experience with the use of any other anaesthetic in this condition, but on theo-

retical grounds would consider the use of the nitrous oxide gas as the least objectionable, and particularly as the operation is one of so short duration. Unfortunately we can not judge in any case of long standing as to the actual condition of the kidneys, so that the consequences which may follow must be fully appreciated both by the operator and the patient.

Many objections have recently been made to surgical interference in these cases of chronic cystitis. While the chief danger in relation to the state of the kidneys has been entirely overlooked, the exceptions taken have been based entirely on theoretical grounds, with really no foundation in practice. We are all aware that most plausible objections may be made against any operation in surgery, and that the most simple in character is not free from danger under all circumstances. This operation may be regarded as an innovation, but experience has long since taught that it is founded on correct principles. The advance which will be made in the future will be an appreciation of the necessity for an early resort to its performance, before delay has placed a comparatively simple condition beyond the scope of any remedial means yet known to the profession.

In my work on Vesico-vaginal Fistula I describe the mode of operating on page 43, and give the history of a case where the same operation was performed for the removal of a stone from the bladder. An anæsthetic was administered, the patient placed on the left side, and Sims's speculum introduced. Then "a sound, somewhat abruptly curved an inch and a half from its extremity, was introduced through the urethra. While held by an assistant, with its point firmly pressing in the median line against the base of the bladder, a little behind the neck, the projecting tissue on the vaginal surface was seized with a tenaculum, and divided by a pair of scissors directly on the point of the sound until it could be passed through into the vagina. With the sound remaining in the opening as a guide, one limb of a pair of scissors was passed

alongside into the bladder, and the vesico-vaginal septum divided backward in the median line. By this mode, especially where the vagina is of the natural size, the operation is extremely simple, and is completed in a few minutes. The object in cutting on the point of the sound is to be sure that the bladder and the vaginal surface are divided in correspondence, for there is so much mobility of one surface over the other that it is exceedingly difficult to enter the bladder unless the parts are transfixed. I have frequently closed the opening immediately after removing a stone, as in the operation for fistula, with the same after-treatment. In this case, however, I determined to leave it open a year for the relief of the chronic cystitis, as the bladder would thus be kept empty, and the chief source of irritation consequently removed; by remaining at rest it would gradually recover its tone." "I directed that the bladder should be washed out several times a day with large injections of warm water, slightly acidulated by adding a few drops of nitric acid, as the most direct way of correcting the alkaline state of the urine, due to the condition of the bladder itself. After three months' treatment the patient had improved so much, and was so anxious to return home, that on the 20th of June I reluctantly closed the fistulous opening, using eight sutures, which were removed on the following day. July 20, 1866, she returned home apparently cured of the cystitis, and able to retain her urine without difficulty during the night. It remains to be seen whether the opening was closed too soon, for with a recurrence of the inflammation the calculus will form anew."

This woman was well some months after leaving the hospital, and promised to return at once in case of any recurrence of irritation of the bladder. As she has not done so, I am fully satisfied that she has remained well.

The mode of operating, as described, can be but little improved upon from its simplicity. The median line has been preferred for the direction of the incision, as for all practical

purposes the course is free from blood-vessels of any magnitude, without the opening be extended too near the cervix or to the neck of the bladder.

Dr. Bozeman, in the paper already referred to, describes his method of operating as follows: "To give them free vent (the morbid products constantly accumulating), an aperture the size of *half a dollar* is made into the bladder through the vesico-vaginal septum, just above the vesico-urethral orifice. When the patient is placed in the knee-chest position, and my self-retaining speculum introduced, the operation is done without an assistant, and with the greatest dispatch. A pointed knife with a narrow blade, a curved scissors, and delicate tenaculum suffice. First pierce the septum at the point indicated, then cut right and left at least half an inch each way. With the scissors the operation is easily completed, and then the extent of muscular hypertrophy may be ascertained, as well as the condition of the vesical mucous membrane."

The base proper of the bladder may be represented as a triangle, the mouths of the ureters being situate at each extremity of the base, and the vesico-urethral orifice at the apex. This triangular space maps out the surface where the bladder and vagina are in the closest contact, being connected elsewhere by loose cellular tissue. Just outside of the line of the ureters, in the sulcus on each side, run the large blood-vessels to and from the lower portion of the uterus and neighborhood. I have made a number of post-mortem examinations of the healthy bladder, both *in situ* and after the removal of the pelvic organs *en masse*. In no instance have I found the distance from the mouth of one ureter to the other, or from either to the orifice of the urethra, greater than an inch, these forming a triangle of equal sides. When disease has existed, and the bladder been long contracted, the distance between these points in all probability would be somewhat lessened. The diameter of half a dollar is one

inch and an eighth, while a circle including three points, as I have described, at an inch apart, would have a diameter of a little less than an inch and two eighths. It is very evident therefore that in less skillful hands there would be some danger of removing the mouths of both ureters, together with a portion of the neck of the bladder, and no little risk, at the same time, of cutting into the large blood-vessels laterally, running along the vagina, outside of the bladder.

It is true that in the position recommended the vagina, by the weight of the uterus and by atmospheric pressure, would be fully dilated, and at the same time the distance between the line of vessels would be greatly increased, but no influence could be brought to bear which would increase the distances between the three given points within the bladder. It is true also that in the formation of a fistula, after parturition, we often find as large a slough thrown off from the septum, and the opening resulting remains even much larger than the one proposed by Dr. Bozeman; but the neighboring tissues for some distance beyond the margin of the slough become blended together by inflammation before its separation, and the fistula is afterward increased or diminished in size, as tension may be exerted by the contraction of these tissues.

In theory, there can be no necessity for an opening larger than that which would equal the capacity of the ureters, that the bladder may be thus kept empty. In practice, however, the incision is made larger at first than this indication would call for, from the fact that, with all the care that can be taken to prevent it, the greater portion will close too soon; and at first it is a great advantage to have so free an opening through which the accumulated mucus in the bladder may be freely washed out. The plan of cutting out a small piece is a good one, as the opening can then never entirely close of itself; but to do so would be evidently attended with more risk than the simple incision, even in the hands of an experienced operator.

Various means have been resorted to for the purpose of keeping the artificial opening patulous. In several cases I have used with advantage a hollow glass stud, made from tubing half an inch in diameter, and not unlike a spool in shape, which is buttoned into the slit. The portion of the rim to remain within the bladder requires to be but little more than a slight flare, with the edge turned over, to keep the instrument *in situ*; while the vaginal rim may be larger, to prevent its slipping into the bladder. It will remain loose, with sufficient play to prevent the parts from healing up too tightly around; and for its removal only a pair of forceps is necessary, by which one side may be turned up for the other to escape. I have always made them myself, of the best quality of glass, and have had them remain for weeks undisturbed; yet in some instances, when they have been longer than the thickness of the vaginal septum, a great deal of irritation has resulted. As a rule, I think it advisable at first to rely upon the careful introduction of the finger; but after a few days, when the irritation of the parts has somewhat subsided, and the incision begins rapidly to close, the glass stud may be used with great advantage.

I will now briefly give the history and treatment of several cases in detail, with the view of illustrating some of the difficulties and complications attending. In making the selection I have intentionally presented some of the cases with which I have had the most difficulty, wishing rather to give prominence to the dangers than to mislead.

I have operated by this method during the past ten years, in hospital and private practice, in some ten or twelve cases of chronic cystitis due to disease of the bladder itself. The number is too small to be of any statistical value, since I have never been able to ascertain the subsequent condition of several patients after their discharge from the hospital; and having no complete records of those treated in private practice, I do not wish to trust to my recollection. It is

sufficient for all practical purposes, however, to state that I have been able to keep several cases under observation for a number of years after closing the fistula, and that there has been no return of the cystitis, where death would have resulted long since had this mode of treatment not been resorted to. Experience has certainly taught that while the operation may palliate at any stage of the disease, the benefit, as I have already stated, will be in ratio to the time of performing it.

Mrs. Ann Kelley was admitted into the Woman's Hospital on May 13, 1870. This patient had been in the hospital some time ten years before, and had been operated on by Dr. Sims for the closure of a large vesico-vaginal fistula, by which the cervix uteri had been turned into the bladder. She had remained well until eight years after her discharge, when irritation of the bladder set in, and rapidly increased. Her condition was a miserable one at the time of admission, and it was impossible to make a thorough examination. It was ascertained by means of the endoscope that the mucous membrane of the bladder was ulcerated. Local applications were made by means of this instrument, and the bladder was washed out from time to time, but with great suffering. As she received no benefit from local treatment, an anaesthetic was administered, and after a careful examination an encysted stone was detected. An incision was at once made through the vesico-vaginal septum, and with some difficulty the calculus, as large as a hazel-nut, was turned out of its bed in the posterior wall of the bladder. It was composed entirely of phosphate of lime. The mucous membrane of the bladder was found lost to a great extent, each denuded portion covered with a phosphatic deposit, and some thickening of the walls of the bladder existed. The bladder was washed out every day thoroughly, by placing the patient on the back with a bed-pan under her hips. Two fingers of the left hand pressed back the perineum as they were inserted into the

fistulous opening to separate its edges, while the warm water in large quantities was carefully thrown into the bladder by means of a Davison's syringe held in the other hand, the smaller nozzle of the instrument being introduced either through the urethra or directly into the opening. Afterward the point of a sound was drawn along the angles of the opening to retard its closure. The edges of the incision healed rapidly, and the patient was in a condition to return home June 20th, with the urine freely escaping through the artificial opening. She was readmitted to the hospital October 8, 1870. As the fistula had to a great extent closed, and the patient, as she improved, had neglected somewhat to use the injections, it was decided that the bladder should be washed out daily, with extra care, through a double catheter.

November 15th, the bladder being apparently in a healthy condition, its closure was determined upon. The opening was not larger than a pin's point, and situated near the neck of the bladder. It was closed with six sutures, and at the same time a mass of loose tissue at the neck of the bladder was turned in, as in the operation for cystocele, for fear that if left it might prove a source of irritation to the urethra.

November 25th, the sutures were removed, and the operation proved successful. The patient was discharged cured December 12, 1870, and she has remained well to the present time.

This case was of no particular interest, but to illustrate the rapidity with which recovery from chronic cystitis due to a stone in the bladder takes place.

Mrs. Mary B., aged twenty-four, was admitted to the hospital October 17, 1868, from Goshen, N. Y., with a vesico-vaginal fistula of four months' standing, after a labor of thirty hours. There had been a loss of two thirds of the lower portion of the base of the bladder, extending from one ramus to the other, without involving the urethra. In consequence of contraction of cicatricial tissue along the lateral walls of

the vagina, the canal had become shortened, and the opening was drawn into the shape of a parallelogram. The fistula was closed, November 7th, with thirteen interrupted sutures, by Dr. John G. Perry, assistant surgeon to the hospital, the operation being a very difficult one, owing to the peculiar shape of the fistula. The sutures were removed on the tenth day, and the union throughout the line was perfect, notwithstanding that great traction existed.

December 18th, Dr. Perry operated again, to close several small openings in the line, which had been produced by the great strain on the parts. This operation proved nearly successful, leaving but one small opening at the extreme end of the line, to the left, near the cervix. The patient returned home, but was readmitted February 15th, when it was found that this small opening had increased to nearly an inch in length. I closed it myself March 6th, using seventeen sutures. On bringing the edges of the fistula together a pucker was formed at each end, so that it was necessary to extend the denuded surface for some distance on the vaginal surface before the folds became reduced to the common vaginal level. The sutures were removed March 26th, and the patient was discharged cured March 31, 1869.

A few weeks after her discharge she began to suffer from some irritation of the bladder. This increased by degrees, and occasionally the urine was mixed with blood. She became pregnant, and was delivered with forceps February 14, 1870. Gradually the difficulty with the bladder became greater, and she was again admitted to the hospital March 31, 1871, suffering fearfully from chronic cystitis. It was with the greatest difficulty and suffering that a double catheter could be introduced for the purpose of washing out the bladder, and at length so much so that it became necessary to administer an anæsthetic every other day in order to effect it properly. As but little improvement had taken place April 21st, I made a transverse opening just beyond the

neck of the bladder, an inch in length, and somewhat crescentic in shape. This was done in consequence of the great loss of tissue, there being not room enough between the cervix and neck of the bladder to make the incision in the axis of the vagina. When the finger was passed into the bladder, its walls were found greatly thickened, the mucous membrane destroyed to a great extent, and coated with the most offensive phosphatic deposit, which when removed caused bleeding from the surface below. Her sufferings were so great, even after the operation, that it was still necessary to give her an anaesthetic every other day before washing out the bladder, and often a gallon of warm water was used at a time before the deposit could be removed. A week after the operation I introduced a glass stud into the opening to keep it from closing. This treatment (by injection) was continued daily until August 7th, when the glass instrument was removed, as it had begun to excoriate the posterior wall of the vagina. Her general health began to improve rapidly, and she was by this time free from pain, except when the bladder was syringed. When the finger was passed within the bladder, its surface was felt to have become smoother, but was still tender on pressure; yet the improvement had been very great. The injections were continued until October 1st, with half a drachm of carbolic acid to the pint of water. This had constituted the treatment, with the exception of the application of a weak solution of nitrate of silver to any denuded point which could be detected to lessen the phosphatic deposit. From some unexplained cause a sudden relapse occurred, with a chill and symptoms of pelvic inflammation, and her condition became apparently worse than before the operation. With fever, she suffered from pain over the hypogastrium; the urine became high-colored and filled with urates. It was unbearable to introduce the finger into the bladder through the opening, the edges of which had long since healed and ceased to be sensitive. Notwithstanding every care the whole

vaginal surface became denuded of its mucous membrane from the irritating character of the urine, and coated with the phosphatic deposit. The labia inflamed, and became so sensitive that the slightest examination could not be made except under the influence of an anæsthetic. In a few days the urine was as offensive as if mixed with the contents of an old pelvic abscess. By degrees the vagina could be syringed out several times a day, and she was able to take hot sitz-baths. With anodynes, tonics, and other treatment, she was placed on ten drops of dilute nitric acid three times a day. As the irritation of the vagina lessened somewhat, its excoriated surface and the now raw edges of the fistula were touched every other day with a solution of nitrate of silver in spirits of nitric ether (forty grains to the ounce), and on drying the surface collodion was freely applied. She began now rapidly to improve, and the free use of the collodion proved of the greatest advantage, not only in protecting the parts from the urine, but also as a local anæsthetic.

November 14th, she had now gained so rapidly that the finger could be introduced into the bladder without causing pain, and there remained not the slightest vestige of the cystitis. I closed the fistula, using eight sutures; and in denuding removed the surrounding tissues freely, with some doubt as to the success of the operation in consequence of the cicatricial character of the edges, which had resulted from the frequent use of nitrate of silver. She was placed in bed, a small quantity of opium was ordered daily, with a light, nutritious diet. A sigmoid catheter was retained in the bladder, and only removed night and morning for the purpose of cleaning it. Her condition remained comfortable until the sixth day, when a small quantity of urine began to pass by the vagina.

November 22d, the sutures were removed, when it was found that a small opening existed near the center of the line where a suture had cut out, due, it was thought, to traction

and low vitality of the parts. A catheter was retained in the bladder for several days longer, when the quantity of urine lost diminished greatly.

January 20, 1872. This patient has been retained under observation. She is entirely free from all trouble of the bladder, and is now in perfect health, having gained some twenty pounds in weight. The opening is now so small that when lying on the back she has retentive power. The bladder is never entirely emptied except through the urethra, so that if the cystitis was not cured there would long since have been evidence of it. The sound now can be passed into the bladder at any point within its cavity, and without causing the slightest pain or irritation. To close the little valvular opening would be but a trifling matter, and it has been deferred with the view of keeping her under observation.

Kate Smith, unmarried, aged twenty-seven, a native of Ireland, was admitted to the hospital June 10, 1868, from the city, with chronic cystitis.

She had been in good health until her emigration to this country in 1863, when she was attacked with small-pox three days after her arrival, and continued an invalid for eight months afterward. Her health slowly improved, but she never regained her previous strength, and had occasionally attacks of inflammatory rheumatism. In March, 1866, while attempting to carry a table, she tripped, and falling forward received a blow on the lower portion of the abdomen, from which she suffered great pain at the time. It diminished to a feeling of soreness, but lasted until the following June, when she took a cold bath, from which she got chilled. She was obliged to go to bed in consequence of sharp, shooting pains in the lower portion of the abdomen, accompanied with a frequent desire to empty the bladder. From this time her suffering continued; she was never free from irritation of the bladder, and at the time of her admission to the hospital her symptoms were all those of well-marked chronic cystitis. She

was placed under a careful constitutional treatment; diluents and other agents were used to correct the condition of the urine, and the bladder was carefully washed out daily, but without in the slightest degree benefiting her condition. So great was her suffering that, July 1st, I decided to operate without further delay, and made the opening in the usual manner along the median line. The interior of the bladder was apparently a mass of granulations, and from some accidental cause the hemorrhage was so profuse from the cavity itself that it was necessary to inject a saturated solution of alum, and, this failing, a quantity of the persulphate of iron and water, before it could be arrested. On the fifth day, as in the previous case, the vagina became coated with a phosphatic deposit from the urine, and this condition added greatly to her suffering. The opening was kept from closing by passing the finger gently within, and at the same time the bladder and vagina were carefully washed out with warm water several times a day. On the tenth day after the operation symptoms of peritonitis were developed. She was at once brought thoroughly under the influence of morphine to semi-narcotism, and turpentine stupes were applied to the abdomen. As far as it was possible to do so in her condition, the bladder was daily washed out with hot water by the vagina. She was placed on five grains of quinine three times a day. Stimulants had to be resorted to, and finally increased to an ounce of whisky every half hour, with beef-tea, milk, and eggs freely.

July 20th, she was seen in consultation with Drs. George T. Elliot and George A. Peters, of the Consulting Board, when it was decided that the case was complicated with pelvic cellulitis. A large blister was applied to the lower portion of the abdomen, and five grains of iodide of potassium were ordered three times a day.

July 22d, her pulse averaged 131, respirations 12, and the bowels moved twice during the day, but were controlled by an opium enema.

July 24th, nine A. M., pulse 104, countenance good, tongue moist, and the tympanites diminished. She was placed again on quinine and brandy, and the iodide of potassium stopped. During the following night the bowels moved several times and with great pain, but they were held in check by an opium enema. The morphine was reduced to five drops of Magendie's solution every hour. She had been sweating profusely, but it was considered due to the large quantity of morphine that she had been taking.

July 25th, pulse 118, respirations 12, skin pleasant in temperature, with less sweating since reducing the quantity of morphine. With still a tendency to diarrhea, the tongue was moist but furred, and she now complained of feeling exhausted. The abdomen was decidedly less tender on pressure and the tympanites had diminished greatly. At noon the pulse suddenly reached 136, the skin became hot and the face flushed. The morphine was again ordered to be increased to ten drops of Magendie's solution every hour. During the day the bowels moved three times, and at six P. M. the pulse was still 136. The action of the bowels was checked by twenty-five drops of the acetated tincture of opium, with two drachms of tincture of kino in starch-water by injection into the rectum.

July 26th, pulse 120; the bowels had moved frequently during the night, and her sleep had been much disturbed by pain after each evacuation. Her tongue was moist, with but a slight increase in the temperature of the skin. There was but little change in her condition until August 8th, when she began to convalesce. She was put on a tonic, composed of iodide of potassium, iodide of iron, strychnine, and sulphate of quinine, which proved of great benefit.

September 1st, she began to walk about the ward, and the cystitis to improve.

October 15th, the patient had now regained her health in a great degree, and the fistula remained well open. The introduction of the catheter through the urethra, however, was

still painful; the injections were therefore thrown into the bladder along the finger passed through the fistula, which allowed of its free escape.

January 24, 1869. The cystitis had now decidedly improved, and the catheter could be introduced by the urethra without pain, so that the daily injections were administered in this direction with a free escape by the vagina. The patient continued to gain in health and strength rapidly.

March 1st, the injections of warm water had been continued to date, and from time to time a weak solution of nitrate of silver had been applied to any denuded portion of the bladder which could be brought into view, and the solution of the persulphate of iron had been used for the same purpose. Her general health began now to suffer somewhat from her long confinement, with loss of appetite and strength. The cystitis, however, had steadily improved. In consequence of the inflammation of the mucous membrane of the vagina during her illness, the canal became constricted by a circular band just beyond the fistula, so that the extremity of the index finger could scarcely be admitted. The uterus had become partially retroverted and fixed from the attack of cellulitis, and to this was attributed the back-ache and pains about the hips of which she now complained. There had been a scanty menstrual show but twice during the previous summer. The cystitis had improved so much that it had only been necessary to wash out the bladder three times a week, but a small quantity of dilute nitric acid was still added to the injection.

June 1st, Dr. Newman made a careful examination of the bladder with the endoscope, and found no longer any remains of the disease. The fistula was closed, using eight sutures; they were removed on the tenth day, and the union was perfect. Ten days afterward, on sitting up, it was noticed that a portion of urine escaped, but by the urethra, as was found on examination.

June 29th, she began to complain of some irritation and pain in the urethra, which was attributed, as well as the loss of urine, to the long use of the catheter. By means of the endoscope a granular spot was discovered in the urethra, near the neck of the bladder, which was painful on pressure. To this a solution of nitrate of silver was applied.

July 18th, after three applications by Dr. Newman, this spot healed, and the retentive power was regained. She was discharged from the hospital on this day, cured apparently of all disease, and her general health in good condition, after having been daily under treatment for over a year.

Readmitted November 6, 1869. Had remained well for several weeks after her discharge, when the pain returned in the urethra, with some irritation of the bladder if the urine was retained beyond a given time. Under Dr. Newman's care the granular point in the urethra was soon healed again. The irritation of the bladder was evidently due to the long-contracted condition of the organ, and had to be dilated before the urine in any great quantity could be retained. The bladder was gradually distended by injecting, day after day, a large quantity of water, which was retained for a short time before being passed. This patient was kept in the hospital under observation until June, 1870, during which time attention was directed to her uterine condition. She received no treatment for the bladder for six months previous to her discharge; the organ became fully dilated, and regained entirely its normal condition.

Mrs. Ellen O'Brien, aged thirty-five, was admitted to the Woman's Hospital November 8, 1867. Menstruated for the first time at sixteen years of age, with great pain, lasting from four to five days, and rather free in quantity. She married at seventeen, and gave birth to her only child within a year. Four months after marriage her husband died. She married again in 1864, and the second husband died a year afterward.

Her general health from childhood had been delicate.

Three years previous to admission she received a severe fall, and from that time she had never been free from irritability of the bladder. This gradually increased, until at length with constant pain she was obliged to empty the bladder at least every half hour during the night and day. The urine was sometimes clear, but generally of a dark, smoky color, with often some sediment, and frequently tinged with blood. She was found suffering from chronic cystitis, with some thickening of the walls of the bladder. The uterus was retroverted and fixed in position from some previous attack of cellulitis. The organ was normal in size, but the cervix was indurated and small, with "os" nearly closed. With injections into the bladder an attempt was made at the same time to correct, if possible, the position of the uterus, as the cervix was pressed upward against the base of the bladder and might prove a source of irritation. The finger, by the rectum and vagina, was the only means used to lift up the fundus, for fear of exciting the old pelvic inflammation. This was only partially successful; the cervix was blistered from time to time with the acetic solution of cantharides, with the view of lessening the induration, and sponge-tents were also carefully used for the same purpose, and to relieve the dysmenorrhea by opening the os. Great pains were taken to improve her general condition. With the view of acting on the bladder, she was placed at one time on a mixture containing ten grains of tannin to the dose; large doses of old muriated tincture of iron were used, from its containing more free acid than the fresh preparation, and I believe she at one time readily took a drachm three times a day. An infusion of the *triticum repens* was also freely given for some time.

March 10, 1868. In consequence of a slight exposure to cold she suffered from a severe attack of pelvic peritonitis, lost what little benefit had been gained by treatment, and was several months convalescing. At length, after nearly seven months' local treatment, having exhausted every local and

constitutional resource with but little benefit, the operation was recommended. After fully explaining to the patient the risk of life, even in her debilitated condition, should the operation again light up the subacute pelvic inflammation, which still existed, she decided to submit to the operation with all its dangers in preference to remaining in her present condition.

June 2d, the patient was placed under the influence of ether, and with the concurrence of Drs. Alfred C. Post, one of the consulting surgeons, and H. P. Farnham, her former physician, the artificial opening was made. The incision was an inch and a half in length, extending from the neck of the bladder nearly to the cervix uteri. The interior of the bladder was found in the usual condition, with the walls thickened and corrugated, but with less ulceration of the mucous membrane, the latter condition being due probably to the length of time she had been under treatment.

June 23d, with the greatest difficulty the fistula had been kept open, but had now become so small that the finger could with the greatest difficulty be introduced.

July 18th, she was discharged, greatly improved both in her local and general condition, to return in the fall.

October 27, 1868, she was readmitted to the hospital, having been under observation during the summer as an outdoor patient. Her general health had not improved to any great extent, and she had suffered greatly from the fistula, which twice nearly closed. The adhesions were broken down so as to admit the finger, and at length it remained permanently open, large enough to admit a No. 6 bougie, through which all the urine escaped. During the winter the regular treatment was kept up, with much improvement in the cystitis, and the walls of the bladder became softer. Much thickening, however, and induration at the neck of the bladder remained, with tenderness in the urethra, making it unbearable to introduce a catheter into the canal.

June 4, 1869. For several months past a solution of morphine, containing eight grains to the ounce, had been thrown into the bladder, after washing it out with warm water. This plan was followed with great benefit, so that there was decidedly less tenderness on pressure in every portion of the bladder, but she continued to complain whenever a catheter was introduced.

June 9th, a relapse occurred, apparently without cause, with a constant desire to empty the bladder, although the urine all escaped freely by the vagina. Dr. Newman kindly examined the bladder for me with the endoscope. Its mucous membrane was found to be now in a normal condition. As the instrument was slowly introduced into the urethra every portion of the canal was carefully inspected. At first nothing could be found, but at length a minute granular point was detected on the left side, about half an inch from the orifice, intensely red, and painful to touch. Churchill's solution of iodine was applied, giving much pain, which lasted eight hours.

June 16th, the patient was again examined, and it was found that no improvement had taken place. The iodine application was repeated, with less pain than after the previous examination.

June 21st, a weak solution of nitrate of silver was applied to the ulcerated point, and repeated on the 24th and 28th inst. The patient complained a great deal of pain after each application, but the surface gradually healed. She remained in the hospital during the summer without further treatment beyond the injection of water into the bladder. In December the fistula was closed; but on removing the sutures it was found that no union had taken place, in consequence of the cicatricial character of its edges, resulting from the frequent application of the nitrate of silver. As her general health was still poor, the fistula was not again closed until May 31, 1870; seven sutures used, after removing with a pair of scissors the vaginal tissue around the edges of the opening.

June 9, 1870, the sutures were removed, and the edges were found firmly united. She was discharged cured July 18th, having been two years and some eight months under daily observation and treatment. After her discharge her general health improved without any further trouble with the bladder. She continued well, and on inquiring to ascertain her present condition, I learn that within a short time she has returned to Ireland.

I have had but one death follow the operation, the history of which is given in my work on Vesico-vaginal Fistula, page 237. "Case LXXIV—Cystitis resulting from cold, of eighteen years' duration, followed by a pelvic abscess, which soon afterward opened into the bladder and vagina. Fifteen months previous to admission incontinence of urine suddenly took place, with partial relief of the cystitis afterward. The vesico-vaginal sinus was enlarged, so as to allow of the free escape of urine. Death from uremia forty-eight hours after the operation." The post-mortem examination showed the existence of chronic tuberculous peritonitis, the left kidney was enlarged, and sufficiently dilated to contain three or four ounces of fluid, and the ureter on that side was also greatly dilated. The right kidney had been entirely destroyed by tuberculous deposit, which had undergone cheesy degeneration, leaving scarcely a trace of the kidney structure. Her death was due to the effect of ether, by which the diseased kidney became congested above the secreting point.

With the exception of a patient who suffered from an attack of peritonitis, due to accidental exposure a week or more after the operation, I have met with but little difficulty in the after-treatment of other cases, and therefore have thought it unnecessary to extend this paper to a greater length.

NEW YORK.

TRAUMATIC TETANUS TREATED WITH CHLORAL HYDRATE AND ELECTRICITY.

BY HAMILTON GRIFFIN, M. D.

On the 19th of July I was called to see Margaret Johnson, aged twenty-one years, mulatto, occupation laundress, constitution very robust; found her suffering from frightful tetanic spasms, with complete opisthotonus; the jaw firmly locked, the muscles about the jaw perfectly rigid, with *risus sardonicus*. These spasms occurred every ten minutes. During the interval the patient was enabled to open the mouth far enough to allow a tea-spoon to be inserted between the teeth, but the abdominal muscles were corded and painful. She also complained of severe pain at the ensiform cartilage. Ordered chloroform to be administered by inhalation.

Inquiry elicited the following history: On the 18th day of June she stepped upon a piece of glass, which inflicted an incised wound about three fourths of an inch in length, and about the same in depth, on the inner side of the plantar surface of the left foot. This wound suppurated, and continued painful until July 10th, when Dr. W. T. Owen was called to see her, and found her jaw stiff; tonic spasms extending to neck, abdomen, and back. During the spasms all the muscles in these regions were involved. There occurred *risus sardonicus*. The muscles most firmly contracted were the sternomastoid, rectus abdominalis, and obliquus internus. There was no febrile disturbance, but she complained constantly of pain at the ensiform cartilage and in the right inguinal region. Dr. Owen ordered her to take one half grain of calabar-bean every half hour until she had taken four grains. This treatment produced no effect. He then ordered twenty-grain doses of chloral hydrate every four hours while awake.

This treatment, with flaxseed and opium poultices to the wound, produced muscular relaxation and relief of pain.

July 17th, Dr. Owen discharged the patient for disobedience of orders and neglecting to take her medicine.

July 20th, having heard from Dr. Owen of the beneficial results which followed the use of chloral, I ordered fifteen grains, combined with one fourth grain muriate of morphine, every four hours; chloroform inhalations to be used during spasm.

July 20th, six p. m., pulse and temperature remain normal; spasms occur every six hours; muscles slightly relaxed, but opisthotonus complete during paroxysm.

July 21st, called in Prof. J. W. Holland, who applied the continuous galvanic current by means of Stohrer's battery. The current produced muscular relaxation and relief from pain in fifteen minutes.

July 22d, pulse and temperature normal; no spasms since last visit; pain as before; mouth opened one fourth inch with great difficulty. The chloral, morphine, and galvanism were continued for several days, when the patient was discharged cured.

I have seen during the last fifteen years thirteen other cases of traumatic tetanus, all of which proved fatal; but in every case the tetanic symptoms came on in a few days after the reception of the wound, and were violently acute from the commencement. The difference between the case in this report and the fatal cases is that tetanus did not make its appearance until twenty-two days after the reception of the injury, and then it began in a mild form; no opisthotonus being observed until nine days after the tetanic symptoms occurred. It is my opinion, based on a study of these cases, that where tetanus comes on in a short time after the reception of an injury, where it assumes a violent and acute form, the patient will die in almost every instance. Where tetanic symptoms are delayed a considerable time, and on appear-

ance are of a mild or subacute form, the patient will almost invariably recover.*

[In respect of the galvanic treatment of muscular spasms, this case is worthy of some comment. On July 21st an active current from sixteen Stohrer's cups was passed directly through the muscles which close the jaw, with no advantage. The positive electrode was then placed upon the infraorbital nerves, and the negative changed about among the masseters and temporals of the two sides. The only effect was to relieve some pain just anterior to the ear. The antagonist muscles were next excited, in the hope that the experience of Dr. Mendel† in tetanus would be repeated; still the jaw did not yield. As the patient made great complaint of the epigastric pain, the phrenic nerve was brought under the electrical influence. The negative electrode was pressed firmly upon the integument behind the sterno-mastoid muscle, and the positive was directed to the top of the ensiform cartilage. Relief from the spasm of the diaphragm was immediate, the distress disappeared, and the rigid sterno-mastoid became relaxed. When the positive pole was applied upon the neck behind the angle of the jaw, the negative being retained in its position several inches below, still more marked benefit was had. The grin vanished, and after an application in this position, lasting six minutes, the teeth could be separated nearly half an inch.

July 22d, it was found that the neck had retained its suppleness, though there was some epigastric pain, and the jaw could be depressed only a quarter of an inch. The general condition was much improved. The same current was used in the manner suggested by the previous day's experience, with fine effect. The pain was dismissed completely, and the jaw was unlocked nearly an inch. The rectus and internal oblique of the abdomen were treated by the constant current

* See this journal for August, 1870.

† Quoted in Althaus's *Medical Electricity*.

for ten minutes, and thereby were loosed from their tonic contractions. A few days' galvanization was resorted to, and always with notable softening of the spasms steadily progressing to a complete restoration to health.—J. W. H.]

LOUISVILLE.

SPASM OF ACCOMMODATION.

BY J. THOMPSON, M. D.

Donders and Wells each state that *spasm of accommodation* is of rare occurrence. The former found it more frequently in myopic patients, the latter as a complication in hypermetropia. Stellwag refers to it as "one of the darkest chapters in ophthalmology, because a sufficient number of carefully studied cases has not yet been observed." Comparatively rare as this disorder may be in Europe, this we must believe, from the statements of the celebrated authorities above mentioned, it is frequently seen in this country. In support of this assertion I could report at least forty well-defined cases which would bear the most rigid criticism. Many of these were under the charge of Prof. E. Williams, of Cincinnati, whose evidence would corroborate my statements. Possibly the peculiar nervous temperament of the people of this country, consequent upon speculative or political excitement, the anxious and hurried struggles for wealth, for place, or for power, may be the most important factor in the production of this derangement, so much more frequent here than in the old world.

Complete as my case-book is with all the symptoms connected with the many cases of spasm of accommodation that I have observed, yet a full report of all would occupy too

much space in the Practitioner, and I will therefore adduce but three of these cases, reporting them as briefly as possible.

CASE I. S. B., aged nineteen, student, November, 1870, complained of "aching in the front part of his head, and a drawing sensation in and across both eyes; has much difficulty at times in reading, and distant vision is also very poor: has worn spectacles (concave, 24s) for nearly two years for walking."

On examination he was found to be myopic, and with his glasses vision equaled $\frac{1}{2}^5$ for a few moments. The letters then became indistinct, when upon the addition of -30s to his -24s he could again read No. 20 of Snellen's test-type. Spasm of the ciliary muscle was the diagnosis, and he was ordered to apply a few drops of a four-grain solution of atropine to his eyes three times a day, and to report again in two days.

November 4th, pupils well dilated, $S=1\frac{1}{2}^5$ with -30s (vision equaled $\frac{1}{2}^5$ with concave spherical No. 30); but in a few moments everything became blurred, and again improved with stronger glasses, which convinced one that the spasm was only partially relaxed. To continue atropine.

November 6th, $S=1\frac{1}{2}^5$ with -36; continue atropine.

November 8th, $S=1$ with -48; continue atropine.

November 10th, $S=1\frac{1}{2}^5$ with -60. He then discontinued the atropine until February 27, 1871, when he was found to be in exactly the same condition as when first seen; or, in other words, the spasm had been relaxed by the medicine, but returned soon after its discontinuance. He was then ordered to use the atropine twice a day for one month.

March 23d, 1871, $S=1\frac{1}{2}^5$ with -72s. He then returned to his home in Illinois, and has not been heard from since.

CASE II. J. W. B., aged twenty, brass-finisher, Cincinnati. December 12, 1870, he complained in a very similar manner to the one just mentioned, and we found that with -24 his vision also = $\frac{1}{2}^5$; but, as in the other case, the letters soon

became indistinct, and were again brought out with an additional concave lens. He was subjected to the same treatment as the foregoing case.

December 13th, pupils widely dilated, and upon testing his vision we found that a latent hypermetropia complicated his case, which at this date appeared to be about $\frac{1}{4}$ in his right and about $\frac{1}{6}$ in his left eye; but, as evidences of spasm were still manifest, he was ordered to use the atropine three times a day for a few days longer.

December 17th, with the unaided eye his vision = $\frac{1}{6}$, but with +7s S=1 in right eye, and with +5 $\frac{1}{2}$ S=1 in left eye.

CASE III. J. K. L., aged about twenty-eight, jeweler, of Louisville, Ky., presented himself, January 25, 1871, with all the symptoms of asthenopia, and feared he was troubled with amaurosis. He also was wearing concave 24s, and with them his vision = $\frac{1}{6}$; but, as in the preceding cases, the blurring of the letters quickly prevented him from reading more than one or at most two letters, unless aided with stronger glasses. Atropine was ordered three times a day.

January 27th, spasm not yet relaxed, and as he had pressing business he was suffered to return home, and ordered to use the atropine twice a day for three weeks.

February 10th, S=1 with 48s \supset 24c; axis 95° left eye, and S=1 with 42s \supset 36c, axis 90°; or, in other words, the myopia had entirely disappeared, and he was found to labor under a hypermetropia of $\frac{1}{2}$ + hypermetropic astigmatism, $\frac{1}{6}$ in the horizontal meridian of his right eye, and H $\frac{1}{4}$ s + A H $\frac{1}{2}$ s in the left eye. Glasses were ordered to be ground with spherical and cylindrical surfaces, with their axes as above indicated, after which he pursued his daily avocation with greater comfort.

The above are simply samples (if you allow the term) of the cases which fell under my notice; but in addition to the above, and besides meeting the anomaly in cases of myopia, hypermetropia, and hypermetropic astigmatism, I have wit-

nessed it in simple, myopic, and in mixed astigmatism, and in some instances where no absolute anomaly of refraction existed at all.

Donders, of Utrecht, reports a case which occurred in a patient of his, who resided in the East Indies, who was myopic, and in whom the atropine had to be kept up for six months before the disease permanently gave way.

Spasm of the ciliary muscle frequently follows blows upon the face, especially in those parts supplied by the upper divisions of the trigemini. I also remember a case which occurred in a professor in Lane Seminary, where it was connected with blepharospasm, which was brought on from an abscess from the root of a carious tooth. Girls at puberty and spinsters are quite subject to it.

Another anomaly (of the anomaly) which I have never seen described or even mentioned in connection with or as a complication of this anomaly, and which I have several times witnessed in spasm of the ciliary muscle, is *mydriasis*, or a widely dilated pupil. It may occur in one eye on one day, and in the other on the following day; but usually no sooner is one dilated than the other becomes contracted, and this alternation sometimes takes place several times during the course of a single day.

Permit me to suggest a theory in explanation of the above. It will be remembered that the ciliary muscle and iris are supplied from the fifth, third, and sympathetic. The third is supposed to supply the anular fibers of the iris, while the radiating ones are supposed to receive their supply from the sympathetic; the third is supposed to contract, while the sympathetic is supposed to dilate the pupil. Now, let us remember the intimate relation which exists between these nerves through the lenticular ganglion, then we can readily see how an irritation of the periphery of either nerve may cause the anomalies in question. The primary irritation may be on the fifth, and its force may be felt upon the third, and

contraction result; then it may pass to the sympathetic partially, and dilatation take place. This irritation may be started in the course of the alimentary canal or uterus, or in other organs, and this train of symptoms or exactly opposite ones may be set up. I simply give the facts, however, and leave theories to the reader.

Treatment. It will immediately be suggested that the cause should be removed. We can not always do this. If we suspect disorder of the uterus or of the ovaries, or any of the reproductive organs or intestinal entozoa, or anything which falls under the domain of the gynecologist or general practitioner, they should be consulted. (Practically, the field in which the oculist should operate is fortunately remote from the vagina.) If the trouble depends on an anomaly of refraction, it should be neutralized by the proper optical aids, but of themselves they are not sufficient. We should keep the ciliary muscle well relaxed with some of the mydriatics for weeks or months, always carefully avoiding atropinization.

INDIANAPOLIS.

Reviews.

Essentials of the Principles and Practice of Medicine:

A Hand-book for Students and Practitioners. By Henry Hartshorne, A. M., M. D., Professor of Hygiene in the University of Pennsylvania, etc. Third edition, thoroughly revised. Philadelphia: Henry C. Lea. 1871.

This work is a mirror of the daily practice of a sound, conservative, judicious, and experienced physician. Though every practitioner who reads it may take issue with the author on points here and there, we know of no work that more completely represents the present prevailing therapeutics in America. It is really a very remarkable volume. Marvelously condensed, and yet unimpaired by the condensation, we have in less than four hundred and fifty octavo pages the essentials of the principles and practice of medicine. While the views and discoveries of others are cited wherever instructive, the work is singularly original, being made up of the experience of the author. Though now in its third edition, and already well and favorably known, we propose to give a somewhat extended analysis of its contents.

"Experience rather than reason" is Dr. Hartshorne's motto. He considers that Rousseau only slightly overstated the fact when he said, "*Rationalism in medicine leads only to absurdities.*" He holds that physiology and pathology are yet in their infancy; that we can not at present construct therapeutics on the basis of scientific medicine; that while physiology is in its present imperfect state, scientific empiricism is the most rational practice attainable; that our great want is more *positivism* in medicine, more *exact observation* of clinical and

therapeutical facts, more fact and less theory; that the two blades of the scissors of practical medicine are diagnosis and clinical proof; that total ignorance of the modus operandi of any agent does not interfere with its availability in the treatment of disease. We do not know, for example, why bitters improve the appetite, why iodide of potassium cures syphilitic rheumatism and quinine intermittent fever, or why opium produces sleep. After alluding to the fact that almost all our medical treasures were discovered by accident, he goes on to say that it is the physician's duty to make empirical observation scientific by accurate comparison of the different modes of treatment, and by appreciating and analyzing the conditions and circumstances modifying the action of medicines and of diseases. He believes that our present incomplete physiology may suggest safe and proper experimentation, and he looks for a time when the how and the why of therapeutics may be largely and accurately explained.

In a few pages we have laid before us a succinct yet ample view of the more essential phases and mutations of past and present medical opinion, a curious and profitable study. The "rational treatment" of the present day, as it is denominated, the recognizing that most diseases are self-limited, doing nothing if we are not clear that we can do good; trusting to nature, or merely assisting her when we have no specifics—a practice with which the names of Dr. Bigelow and Sir John Forbes are so eminently connected—was taught, says Dr. Hartshorne, or at least recognized, by Hippocrates and Asclepiades, and by Sydenham and others of a later day.

The remarks on tubercle are in accord with the prevailing views of the present day. Dr. Hartshorne thinks that Villemein's hypothesis of specific tubercular inoculation is disposed of by the experiments of Lebert, Wyss, Saunderson, and Fox. With Rokitansky, he believes in the general incompatibilities of tubercle with cancer, typhus, ague, and bronchocele, but regards these incompatibilities as only general. Now, as to

cancer and tubercle, it is contended by some that they are intimately connected, and for our part we are sure that tuberculous affections especially abound in malarious regions, and that it is not uncommon to have the two diseases coëxisting in the same patient.

Fatal pulmonary phthisis, says Dr. Hartshorne, may occur in the following ways: 1. And most frequently as a progressive degeneration of the lungs, with intercurrent and successive attacks of inflammation, which hasten the fatal termination; 2. As a tubercular or caseous pneumonia, subacute or chronic, but sometimes so rapid as to be called acute phthisis or galloping consumption; 3. As a simple, slowly progressing cachectic, degenerative disease, constitutional depravation and pulmonary disorganization going on together, and death occurring, sometimes from general vital decline, and sometimes from pulmonary obstruction or debility.

Dr. Hartshorne mentions that he has seen three cases of pulsation of the jugular veins, not dependent upon heart disorder, but due to *local irritation* exaggerating the muscular activity resident in the organic muscle-fibers of the vein. These are interesting facts, and contrary to the received teachings on the subject. He has by no means lost entire faith in bleeding, leeching, cupping, etc., and evidently has a decided contempt for "blood-fearers," as he calls them. From Hippocrates down to the present time the aggregate testimony of the profession has been in favor of local and general blood-letting in violent inflammations and congestions, although in our day, he confesses, bleeding has more opponents and fewer defenders than at any period in medical history. This result he attributes to, first, the reäction from former abuse of the remedy; second, a change in the average human constitution; third, false construction and misapplication of recent science; fourth, leadership and fashion. This reäction, he thinks, has gone to extremes.

In all these propositions, save change in constitution, we

are inclined to coincide; but we do not believe the *vis vitæ* in man is one whit less now than it was in previous ages; and although the dwellers in cities probably do degenerate, from generation to generation, in avoirdupois, yet the life-force is not diminished. During four years' service in the Confederate army, we became satisfied, from abundant and careful observation and comparison, that the doctrine taught time out of mind in the books, that the inhabitants of cities were inferior in vital power to rustics, was an error. We are confident, and we believe the experience of medical men both in the late war and in the Mexican war will sustain us, that the little men of the cities bear active medication, loss of blood, physical suffering, fatigue, and all hardships much better than the big people of the rural districts.

In high grades of inflammation, as a rule, though not invariably, Dr. Hartshorne advises non-stimulant diet, and gives slops. We conceive that it is seldom necessary to give food in the beginning of acute inflammatory diseases. In such cases anorexia usually exists, and a few days' rest to the stomach may remove this. When, however, it becomes necessary to feed sick people, we give them strong and nutritious food, regarding farina, tapioca, sago, and all of that ilk as worse than useless, and only fit for the stomachs of the vigorous and healthy. At the same time, should a patient crave any of these farinaceæ, or indeed any other food, we should yield to his desires, believing that nature speaks through the invalid's stomach, and is far less fallible than the wisest doctor's judgment. Fruits and cold water, we are glad to know, Dr. Hartshorne considers not only harmless, but positively beneficial in sickness. Tartar-emetic, in inflammations of the lungs, pleura, and bronchial tubes, he holds to be the most useful medicine yet discovered. We are satisfied, on the contrary, that there would be more lungs now in use had antimony never been employed by physicians in pneumonitis, pleuritis, bronchitis, etc.; and by far the most serious objection to this

most excellent treatise is its repeated and emphatic recommendation of phlebotomy and antimony and purging and blisters, and other so-called antiphlogistic agents. We are convinced that our author here leans too far back toward the past, and that statistics and the great mass of professional experience are against him.

Mercury he considers of demonstrated curative power in the phlegmasiae. He teaches that mercury is a general stimulant to all the functions of organic life which are performed under innervation from the ganglia of the sympathetic system. It diffuses, he thinks, and equalizes the secretions and the circulation of the blood, helping thus to destroy local congestion and inflammation. Mercury, he has no doubt, acts upon the liver; and in jaundice, "biliaryness," and sick-headache he deems it of unequaled usefulness. Our experience is that where diagnosis is practicable we find jaundice due in most cases to malaria, alcoholism chronic or acute, or malignant disease. In the former quinine without calomel is sufficient; in the latter cases medicine is impotent. Salivation is not necessary under any circumstance, says Dr. Hartshorne, and this is a fact indisputable. In sick-headache, blue mass, calomel, antacids, and oil of turpentine are enumerated as remedies, and bromide of potassium is not mentioned. He says of this last medicine in another place, by the way, that he has found it perfectly safe in twenty-grain doses. In sixty-grain doses, repeated hourly until relief from pain ensued, we have found bromide of potassium but little less reliable in sick-headache than quinine is in ague. Opium, he believes, may arrest inflammation if given early. Cod-liver oil he considers the best and most reliable of the recuperative remedies in all wasting diseases. As anaphrodisiacs he has found no remedies except bromide of potassium and lupulin. He is ignorant of any reliable pepsin made in America. We beg to call his attention to the powdered and liquid pepsin made by Scheffer & Diehl, pharmacists, of this city, as an

article far superior and greatly cheaper than Boudault's. His failure to mention the "ipecac treatment" of dysentery, and the value of chlorate of potash in mercurial stomatitis, are important omissions.

Electricity he deems the best remedy for most neuroses, and he alludes to the employment of the electric eel by the Romans in paralysis and gout.

Cholera is discussed at length. Its name, coming from Greek words meaning flow of bile, is an absurd one, as absence of bile in the excreta is a marked feature of the disease. Cholera morbus is due to an irritant in the stomach or bowels. Cholera has its origin in a specific, material, migratory cause. It is a poison-spasm, a ganglionic tetanus. It is not personally contagious. Quarantine is impotent to arrest or influence its progress. Personal prevention is best insured by keeping the system at par, avoiding dieting or excessive eating. Vegetables and fruits of good quality should be eaten moderately, but should not be interdicted. Calomel and castor-oil he regards as worthless in the treatment of cholera. Bleeding he would use, except for the universally existing prejudice against its employment. He opposes the opium treatment, and brandy likewise. He employs antispasmodics and mild stimulants, frequently repeated, along with ice and frictions. This is his favorite prescription:

R.	Chloroform,	}	āā f. 3 iss;
	Tinct. opium,		
	Spts. camphor,		
	Spts. ammonia, aromatic, .		
	Creosote,	gtt. iij;	
	Oil cinnamon,	gtt. viij;	
	Brandy,	f. 3 ij.	

Mix. Dilute a tea-spoonful with a wine-glass of water, and give two tea-spoonfuls every five minutes, followed by a lump of ice.

A point upon which he insists is that all diarrheas in cholera-times should be checked.

Dr. Hartshorne disposes of syphilis in three pages, and as an apology for brevity says that it is more a surgical than a medical topic. Surely so important a disease deserves a more careful and elaborate consideration, and we have never been able to appreciate the wisdom or justness of calling this a surgical affection, and of leaving it to surgical writers. Syphilis is the most serious question of the day in medicine; it is the scourge of the nineteenth century, and seems to be extending apace with civilization, and more rapidly than Christianity. Few diseases are less understood by the mass of the profession; no disease is more generally maltreated. Few diseases are more amenable to proper treatment; no affection in the whole range of disease affords a more interesting or a more profitable field for investigation. A Hunterian chancre he defines to be a sore on the genital organs. The fact is, it may occur on any portion of the body. He believes that both hard and soft chancre may produce syphilis. In all forms of chancre, barring the phagedenic, he advises mercurial treatment. This practice is opposed to the teachings of the day, and we consider it a most dangerous practice. He believes in the power of nitrate of silver and other caustics to "kill" the primary syphilitic virus. In this faith he has but few enlightened companions. If lunar caustic can kill primary syphilis, why bother patients with mercury, if the chancres are seen early?

The remarks on alcohol are forcible and convincing, and we commend them to the medical student as embodying the prevalent opinion among practitioners on the subject. In reply to the question, Does alcohol contribute to the material or to the force of the economy, or does it only excite some of its organs to exhaustive action? he replies that it may do either of the three, or neither, according to the circumstances and the quantity administered. When there is scarcity of food or difficult digestion, alcohol may contribute to the needed material; its carbon, hydrogen, and oxygen going to

repair the adipose tissue at least. Under excessive exertion, alcohol may sustain the flagging forces of the system. *Accessory* food he considers a happy name to express the powers of alcohol. In full health it is always injurious, precisely in proportion to the quantity used; the same being true in disease when given disproportionately. When given in excess it excites to exhaustive action, organic if not motor. Alcoholic stimulants should never be given in quantities which produce circulatory or cerebro-nervous disturbance or super-excitation. When it quickens the pulse, flushes the face, produces drowsiness or headache, it is usually injurious. In low fevers and consumption it is held to be useful by directly exciting supporting power, by assisting the enfeebled stomach to digest food, and by retarding tissue metamorphosis, as tea, coffee, quinine, and morphine are supposed to do. As retardation of tissue change may be injurious sometimes, alcohol must be given with circumspection. Overstimulation and indiscriminate stimulation are the great dangers to be avoided. Dr. Hartshorne shows by statistics that Dr. Todd's practice of alcoholic stimulation in all acute diseases leads to disastrous results, and that under this treatment the mortality in the fever hospital attended by Dr. Todd was greater than in any other in Great Britain. In the London hospitals the use of alcohol has been largely increased since 1858, and in a similar proportion has mortality increased. In our own judgment, alcohol is seldom required in the management of disease, and should be employed only as a general stimulant in sudden or great exhaustion, and given at short intervals, in very small doses; and as a stimulant to digestion.

In this work all the diseases of the human system are brought in review, and all the great questions of the day are liberally discussed. Poisons and their antidotes are concisely treated of. Twenty-two pages are devoted to skin diseases. Two hundred and fifty formulas are given, and, though we are opposed generally to "this ready-made" clothing for disease,

so to speak, yet, as Dr. Hartshorne suggests, it may not be without value to the professional novice, and even sometimes to the experienced practitioner.

The work closes with a few receipts for alimentary preparations. The subject of foods and their preparation might be with advantage more elaborately treated. But, take the "Essentials of Practical Medicine" all in all, it is one of the best works on practice that has been written, and will prove useful both to practitioners and students of medicine.

L. P. Y., JR.

Fecundity, Fertility, Sterility, and allied Topics. By J. Matthews Duncan, A. M., M. D., F. R. S. E., Lecturer on Midwifery in the School of Medicine, etc. Second edition, revised and enlarged. 8vo, pp. 498. New York: Wm. Wood & Co. 1871.

Dr. Duncan has sought from all the statistics at his command to lay down the laws that regulate human reproduction, and in the volume before us treats of a vast variety of topics interesting alike to the physician, the physiologist, and the political economist. The mention of a few of them will indicate the scope of the work.

In the first chapter the fecundity and fertility of women according to age is discussed, and subsequent chapters treat of the production of twins, of the number of twins born of women of different ages, of the size of families in which twins occur, of the laws of the fertility of women, of the size of the families in a population at a given time, of the fertility of fertile wives at different periods of married life, of the laws of the sterility of women, of the expectation of sterility, of the relative fertility of different races, of the duration of pregnancy, of the interval between insemination and conception, with many others of the same character.

Before proceeding to an analysis of the work, which from the space at our command must necessarily be a partial one, it is proper to give the meaning attached by the author to the terms fecundity and fertility. By fecundity he means the demonstrated capability to bear children; by fertility is meant the amount of births as distinguished from the capability to bear. Fecundity implies the conditions necessary for conception in the women of whom its variations are predicated. Fertility implies fecundity, but introduces also the idea of number of progeny. Fecundity merely indicates the quality, and involves no idea of number.

From the data given in his first chapter the author draws these conclusions: 1. That the actual fertility of the women of Scotland increases, as a whole, from the commencement of the child-bearing period of life until the age of thirty, and then declines until the faculty is extinct; 2. That the actual fertility is much greater before than after the climax is reached; 3. That three fifths of the population at least come from women not over thirty years of age. As the result of other data, he concludes that the fecundity of the mass of wives is greatest at the commencement of the child-bearing period, and declines rapidly after the age of forty. Initial fecundity is very high from twenty to thirty-four years of age, and reaches its climax about the age of twenty-five. In regard to age, he adds that nearly all women married at from twenty to twenty-five are fecund, and that the fecundity of wives below twenty is greater than that of wives married at from twenty-five to twenty-nine.

As illustrative of age as influencing fecundity, he quotes from Geyclin the following statement respecting the domestic fowl: "It has been ascertained," says that writer, "that the ovarium of the fowl is composed of six hundred ovula. Therefore a hen during the whole of her life can not possibly lay more than six hundred eggs, which in a natural course are distributed over nine years; thus: first year after her birth, 15 to 20; second, 100 to 120; third, 120 to 135; fourth, 100

to 115; fifth, 60 to 80; sixth, 50 to 60; seventh, 35 to 40; eighth, 15 to 20; ninth, 1 to 10.

Among women, Dr. Duncan observes the birth of twins occurs once in about eighty deliveries. The rule is one child at a time, and the next most frequent condition is temporary or permanent sterility. A plural birth, considering the increased danger to both mother and child, is to be regarded as in a certain sense a disease, or an abnormality, and is no test of fecundity; for a woman bearing twins may have fewer children in the end than another bearing one at a time, but more rapidly or for a longer period. The greatest number of plural births occurs in women who have passed the age of greatest fecundity, being one in forty-five in women from thirty-five to thirty-nine years of age. One of Dr. Duncan's tables shows that only one woman in a hundred and fifty-three among the youngest fertile women bore twins within two years after marriage, while among women from thirty-five to forty years of age every forty-second woman bore twins in the same period, or nearly four times as many. A woman's chance of bearing twins increases with every pregnancy after the first.

In regard to fertility, the author deduces the following conclusions from his tables: "1. That the mass of early or first children, up to the third or fourth, come into the world in more quick succession than those that immediately follow; 2. That a mass of children, numbering from the fourth or fifth on to the tenth, succeed one another more slowly than those of the first category, and of the third; 3. That a mass of children, following the tenth, come into the world, hurrying one after another, with a gradually increasing rapidity, which excels that of all their predecessors (a circumstance which may, in part at least, account for the great mortality of women bearing children after the ninth)."

Early marriages are more fruitful than those of a later period, those formed between sixteen and twenty years of

age being most prolific. Marriage is followed by the birth of a child, as an average term, within the first year, and Sir William Petty laid it down long ago that every teeming woman can bear a child once in two years; Whitehead says every twenty months; and Dr. Duncan has no doubt that authors generally underestimate the rate at which married women bring children into the world; but he refers to some statistics adduced by Roberton, which show that in seven out of eight women, in Manchester and in York, who suckle for as long a period as the working classes in England are in the habit of doing, there will elapse an interval of from twelve to fifteen months from parturition to the beginning of the next pregnancy; and that in a majority of instances in which sucking is prolonged to nineteen or twenty months pregnancy seldom takes place till after weaning.

The chapter on the fertility of old women contains some curious facts and speculations. Dr. Good held that women marrying late were more likely to conceive than women of the same age who had been long married, for that in them "the generative orgasm had been postponed." But Burns taught, more correctly, that after a certain age the uterus is no longer capable of properly performing its functions, and that this incapability takes place sooner in those who are advanced in life before they marry than in those who became mothers earlier. But in all alike the tendency to abortion increases with women as they approach the close of the fertile period, and our author quotes Dr. Arthur Mitchell for the opinion that idiocy is met with oftener in the last child than in those preceding it; that which in so many cases leads to miscarriage ending in this in feebleness of mind. It frequently happens, he says, that between the birth of the idiot and that of the next or preceding child a much longer interval than usual occurs, and permanent sterility often follows the birth of the idiot. In many cases indications of barrenness preceded the birth of the idiot, and thereafter became perma-

ment. In 1855 fifty-three women in Edinburgh and Glasgow, who had passed their forty-fifth year, bore living children. Among them was only one primipara, aged forty-nine, who had been one year married. Two bore second children—one at the age of forty-six, after being four years married; the other at fifty-two, three years after marriage. Four of the number bore eleventh children; four, thirteenth; two, fourteenth; two, sixteenth; and one, nineteenth: showing that most women bearing children late in life are mothers of a numerous offspring, and not those in whom "the generative orgasm" has been postponed to an advanced age.

Sterility is the fate of fifteen married women in Scotland out of every hundred, according to Dr. Duncan. Burdach has stated that one marriage only in fifty is unproductive; but Dr. West found the general average of sterile marriages among his patients at St. Bartholomew's Hospital to be one in every 8.5. As affected by age, it appears that about seven per cent. of all the marriages between fifteen and nineteen in Scotland are without offspring; that nearly all women who marry between twenty and twenty-four bear children, and that after that period sterility gradually increases with the age at the time of marriage. The question of sterility is decided for each woman, with much probability, in three years of married life, only one in thirteen of the fertile bearing children after that interval; and a wife who, having had children, ceases to bear for three years has probably become sterile, and the probability grows stronger as time advances.

In regard to the fertility of different races, Mr. Tait has collected some statistics which indicate that while that of English women is only eighty-six per cent. of the fertility of Scotch women, that of the Irish is ninety-eight per cent., and in Sweden it rises as high as one hundred and seventeen per cent.

An interesting portion of Dr. Duncan's work relates to the mortality of child-bed. We confine ourselves to the results

afforded by the statistics of hospitals, of private practice, and the reports of registrars-general. From all these it appears that one woman in every one hundred and twenty, delivered at or near the full time, dies within the four weeks of child-bed. "At this result," says Dr. Duncan, "there need be no astonishment. How many women are delivered under circumstances unfavorable for recovery! Some mothers are immature. Many are diseased. Some begin child-bearing when old. All have to pass through the great risks involved in a first confinement. Some have excessive families; some are confined under the murderously depressing influence of shame." Private practice affords far more favorable results, and Sir J. Y. Simpson set down the mortality in hospitals and in private practice as one in one hundred and fifty or two hundred, the improvements in obstetrical therapeutics and hygiene having greatly reduced it in modern times.

The relation of the number of the labor to the mortality accompanying parturition is an interesting topic, and the following are our author's conclusions respecting it: 1. The mortality of first labors is about twice as great as that of all that follow; 2. The mortality from puerperal fever in primiparae is also about twice that of the fever in subsequent labors; 3. The risk of death increases with every labor above nine; 4. As the number above nine increases, the danger from puerperal fever following labor increases with the number; 5. A woman with a large family, escaping the great risk of her first labor, is brought again into great and increasing peril as she bears her ninth and subsequent children. The age of least mortality seems to be twenty-five years, and on either side of this age mortality gradually increases with the increase or diminution of years.

But we must conclude this notice of Dr. Duncan's book, our analysis of which, we feel persuaded, will render very many of our readers desirous of acquainting themselves fully with its curious and instructing details.

Clinic of the Month.

HYPODERMIC CORROSIVE SUBLIMATE IN SYPHILIS.—Dr. R. W. Taylor, in an exhaustive paper on this subject in the Transactions of the New York Dermatological Society, arrives at the following conclusions: 1. That the use of the bichloride of mercury by hypodermic injections, though a method of treatment possessing certain advantages, is for various reasons of limited application. 2. That it is useful in the whole secondary period of syphilis, in roseola, and in the various papular syphilides, and in that form of pustular syphilide in which there is only slight tendency to the formation of pus. 3. That it very rapidly cures all syphilitic neuroses, and that it is very beneficial in the cachexia of syphilis, whether accompanied or not by perceptible lesion. 4. That it possesses no advantages over other modes of administering mercury in the treatment of mucous patches and condylomata lata, and that these lesions yield more rapidly to a local than to any form of constitutional treatment, and that in the syphilitic lesions of the nervous system and of bone, particularly if late, its use is not to be commended. 5. That the very early tertiary syphilitic lesions, provided they are not of an ulcerative character, may be very much benefited by it, and that the simultaneous administration of iodide of potassium internally may produce a cure more rapidly than when the two are given internally. 6. That the peculiar advantages of the treatment are: the smallness of the amount of mercury used, the rapidity of action, and the absence of systemic disturbance. 7. That a very minute quantity of mercury, averaging from two to three grains, thus administered, may cause the disappearance of very extensive

syphilitic lesions, and the alleviation of very severe symptoms. 8. That in the greatest number of cases an injection every second day of an eighth of a grain of the bichloride of mercury will produce a cure in rather less than two months, and that in very urgent cases they may be pushed, with good effects, to the extent of one or two daily. 9. That the rapidity of cure is the rule rather than the exception, and that the time required may be stated as varying between three weeks and two months. 10. That when the injections are given every second day it is very rare to observe any unpleasant systemic effects of the mercury, and that even when they are pushed more than this these effects are never as severe as when mercury is pushed to a similar extent by the mouth. 11. That the relapses after this treatment are equally as frequent, as rapid, and as severe in character as when mercury is given in other ways. 12. That there are unpleasant local effects of the injections, such as pain of the puncture, pain over the site of injection, induration of the connective tissue, and abscesses. 13. That in many cases the pain is very slight, and soon ceases to trouble the patient; but that in others it is so severe and persistent as to necessitate a discontinuance of the treatment, and that in every case some slightly unpleasant local effects are experienced from the use of the injections. 14. That in exceptional cases the injections cause a low grade of inflammation in the subcutaneous connective tissue, producing a decided induration in deep portions of the derma; and that, owing to complications which might perhaps arise from this condition later on, it is advisable to discontinue the injections in these cases. 15. That this induration may be observed in many cases in which it is only of an ephemeral character. 16. That if proper care is used in administering the injections abscesses will rarely if ever occur. 17. That it is absolutely necessary that the patient should be both intelligent and at the same time thoroughly impressed with the gravity of his disease, in order that he may comprehend the advantages he

is to derive from this mode of treatment; otherwise he could not subject himself to the inconveniences which are inevitably experienced in the course of the treatment. 18. That while in dispensary and hospital practice the injections may be frequently given, in private practice the smallness of the patient's means may often be an obstacle in the way of the continuance of the treatment. Finally, that while in some cases the treatment may be useful by reason of its rapid action, and in others for the smallness of the dose, the inconveniences which it produces, the objections of the patients, and the presence of lesions which contraindicate its use, confine its sphere of usefulness to very narrow limits.

BELLADONNA AS AN ANTIGALACTIC.—T. A. Reamy, M. D., of Cincinnati, reports, in *The Clinic*, a remarkable experience of the power of belladonna to arrest the mammary secretion. During a period of fifteen years he has treated twenty-two cases, in twenty of which the success was perfect. In two the remedy was powerless. In one of these abscesses formed, an accident, which had occurred after a previous confinement, leading, Dr. R. thinks, to changes of structure, from which the breast had not recovered. Prof. R. attaches great importance to the *time* when the remedy is employed, to the *preparation* and *mode of application* of the drug. The remedy should be applied immediately after delivery, and continued throughout the forty to seventy hours which supervene between that time and the secretion of milk. An aqueous solution of the alcoholic extract, fifty grains to the ounce, Dr. R. thinks the best form; and strips of muslin saturated with this solution applied to the parts, and covered with oil-silk, the best mode of using the medicine. He lays great stress on making no friction of the glands, because of its tendency to excite secretion of milk. For the same reason he enjoins that the breasts shall not be emptied of colostrum, or of any milk which may have been secreted, and that pups, pumps, and nurses' mouths

should not be allowed to come near. If on the second or third day there should be fever, accompanied with pain or fullnesss of the mamma, as will often occur, no alarm need be felt. The symptoms will subside in a few hours.

ELECTRICITY IN DISEASES OF THE SKIN.—Dr. George M. Beard, one of the highest authorities in this country on all that relates to electricity, has contributed a most valuable article to the American Journal of Syphilography on the uses of this agent in the treatment of diseases of the skin. He says: "It is yet too early to lay down *special* conclusions concerning the prognosis of different diseases of the skin under electrical treatment, but from what has already been accomplished this general proposition seems to be justifiable. For many cases of psoriasis, eczema, anæsthesia, pityriasis, and prurigo, and so forth, that under ordinary treatment are obstinate or incurable, electricity is of such great efficacy, both temporary and permanent, as to entitle it to a very high rank among the resources of the dermatologist."

EXPLORING GUN-SHOT WOUNDS.—T. Longmore, Esq., Professor of Military Surgery, etc., Netley, concludes (British Medical Journal) some interesting remarks on the instruments designed for exploring gun-shot wounds in the following words, which every surgeon who has seen much of gun-shot injuries will most heartily indorse: "As a general rule it may be stated that whatever may be the reasons for concluding that a bullet or any other foreign body has lodged in or near a gun-shot wound, if, after search by the finger in cases where a digital examination is practicable, after external manipulation and observations made in various postures of the part of the body concerned, after attention has been given to indications derived from the patient's sensations, effects of pressure upon or injury to nerves, and lastly, after a moderate but careful examination by one or other of the exploring instru-

ments in use; if after these steps have been taken the site of the lodgment be still not ascertained, more especially if the patient be suffering pain or is in an exhausted condition, the exploration should be at once discontinued. The continuance of the search will not merely add to the weariness and distress of the patient, but if the proceedings above named have been properly carried into execution it is not likely to be attended with a successful issue. The foreign body will probably have passed beyond or out of the field of exploration, or have become deeply impacted in bone or entangled among tissues, where it could only be discovered by an unjustifiable amount of meddlesome and injurious disturbance of the structures implicated. We must rest in hope that either during the process of suppuration, or under the influence of muscular actions, or by gradual approach toward the surface, the escape of the foreign body, whatever its nature, whether hard or soft, smooth or rough, organic or inorganic, may be eventually effected without such risks; or if it be of a favorable kind and form, such as a leaden bullet is when its normal shape is retained; and if it be not in contact with a nerve, bone, or other important organ, that the wound may heal favorably notwithstanding its presence, the foreign body becoming encysted and remaining lodged, without causing either pain or mischief for many years afterward."

CHLORAL HYDRATE IN PUERPERAL CONVULSIONS.—Dr. J. G. Swayne, Physician Accoucheur to the Bristol Hospital, reports (*ibid.*) two cases of puerperal convulsions treated by the lancet and chloral, and adds that from what he has seen of the action of chloral in puerperal convulsions he is disposed to think that its action is similar to that of chloroform, but that it is more steady and persistent in its effects, and that it is much more manageable, because we can regulate the dose with much greater nicety. Although it ought not to supersede bleeding, it is yet a most valuable adjunct to it, and is in fact

the best antispasmodic we can employ in such cases. He believes that the dose required to produce a decided effect must be large—at least forty grains at a time—and this may be repeated in three or four hours. He lately saw a case of puerperal mania, accompanied with much excitement and entire loss of sleep. This restlessness was quite unrelieved by full doses of opium, and was very little affected by thirty grains of chloral. He then gave forty grains of chloral, and repeated it in two hours; and the result was that the woman had six hours of tranquil sleep, after which she immediately began to improve until she made a good recovery.

CANCRUM ORIS.—Mr. McGreevy writes (*ibid.*) that he has never found any application so effectual in this affection as hydrochloric acid. He applies it to the gangrenous spots by means of a feather or small brush.

THE TREATMENT OF SCROFULOUS ABSCESS OF CERVICAL GLANDS.—Dr. Morton, of the Glasgow Royal Infirmary, adopts (*ibid.*) the following: When all attempts to prevent suppuration have failed, and when it is fully established, it is his practice to open the abscess thoroughly with the knife in such a direction that the natural folds of the skin may cover or obscure the slight scar left, preferring, when it corresponds with this, the long diameter of the abscess. He then uses a tent of lint dipped in camphorated oil, and covers the part with an oil or water dressing. The use of the tent is not continued after the first or second dressing. This plan promotes rapid healing, with less scar than we usually see. Such is Dr. Morton's experience in both hospital and private practice. He has used the liquor epispasticus of the *Pharmacopœia*, applied by a camel's-hair pencil to the interior of the abscess, but he never uses caustics. The latter, in Dr. M.'s opinion, tend to increase the size of the scar or cicatrix; and in several instances, chiefly in private practice, he has excised

a dark stain, produced by the use of nitrate of silver, and with the most satisfactory results. Probably excision of unsightly scars might be more frequently performed, and with benefit, upon the necks of *fair* patients.

Dr. A. Ogston, of the Aberdeen Royal Infirmary, has obtained most satisfactory results from repeatedly drawing off the pus by small canulae. As soon as fluctuation is evident, a minute trocar is introduced, and the abscess is emptied as completely as possible through the canula. The canula is then withdrawn, and the wound heals at once. This proceeding is repeated as soon as the matter has re-collected, the abscess is again emptied, and every time it refills the same steps are had recourse to before the fluid collects to such an extent as to cause tension. It has usually to be repeated many times, but eventually the fluid becomes rather watery than purulent, and at length ceases to be formed. Abscesses treated in this way can be readily cured without scar or deformity, and even when their site is very superficial, and they burst during the treatment, the small opening they give rise to heals without a scar, a temporary discolouration of the skin remaining for a few months, and then entirely vanishing. When such a superficial abscess threatens to point, Dr. O. is in the habit of opening it with a minute lance-shaped needle about one millimetre in breadth. The pus is squeezed out, and the little wound heals by first intention. He finds that the treatment by collodion invariably fails. In cases of open scrofulous glandular sores of the neck, with undermined edges or hypergranulation, he finds cauterization with potassa fusa furnishes the best results; the elevated white scar produced being a smaller deformity than the depressed natural cicatrix or the scars of other escharotics.

Mr. Holthouse, of Westminster Hospital, always aims to prevent a breach of surface, either by the spontaneous breaking of the abscesses or by the knife of the surgeon. The few cases which have come under his observation in hospital

in-patients have been in connection with extensive scrofulous ulceration of the skin, consequent on the breaking of these abscesses; and his treatment has been directed to stop the further destruction of skin, to heal the ulceration, and to disperse such abscesses as may not already have broken. With this view Mr. Holthouse usually prescribes from five to ten minims of the tincture of the perchloride of iron in half an ounce of water, with the same quantity (half an ounce) of cod-liver oil floating on it, three times a day; and the patient has the full diet of the hospital, with half a pint or a pint of porter daily, if not contraindicated. Unless the skin be much discolored over the abscesses, he leaves them alone, and has often been gratified in watching the gradual return of the skin to its natural hue, even in cases where at first sight it seemed almost beyond recovery. The final absorption of the contents of the abscess usually follows. If an abscess remain stationary, and it appear doubtful whether it will advance or recede, he poultices it with linseed meal, which either acts as a discutient or hastens the progress of the matter toward the surface. If an abscess slowly enlarge in spite of treatment, and its eventual bursting seems certain, he opens it before the skin has become much discolored, presses out the contents, and seals the wound hermetically. The fluid frequently re-collects, and requires again letting out; but with care there will be no loss of skin and scarcely an appreciable cicatrix. The ulceration which is left after much destruction of skin Mr. Holthouse has seen rapidly heal under the iodide of lead ointment as a local application, and the internal exhibition of the remedies before pointed out. The treatment of all scrofulous affections must be first of all constitutional. As it would be a mockery to prescribe good air, nutritious food, cleanliness, agreeable exercise, etc., to the class of patients who frequent our London hospitals, we must entirely fall back in their case on those therapeutical agents, half medicinal, half alimentary, that it is in our power to dispense—cod-liver

oil and steel. Of cod-liver oil, Mr. Thomas Cooke gives one ounce three times a day to an adult. Steel he gives, not in the astringent form of perchloride of iron, but in the very soluble and non-astringent forms of potassio-tartrate of iron or citrate of iron and ammonia, which can be given in much higher doses without creating constipation. Fifteen grains of either of the above chalybeate salts, with fifteen minims of chloric ether to an ounce of water, form a most delicious mixture, which he gives the adults in ounce doses three times a day, with admirable results. Respecting local treatment, if he have to deal with a chronic abscess, the integument covering which is still healthy, or with a more acute variety still in its incipient stage, he tries to avoid both the drain upon the system which is incurred by a suppurating sore and the ugly cicatrix resulting therefrom. To this effect he covers the part with eplastrum ammoniaci cum hydrargy, which he renews every three or four days. This application, which is very similar to *emplatre de Vigo cum mercurio*, much used in France, he finds more effectual than iodine paint. If resorption do not take place, or if from the first the integument be thin and livid, and the abscess on the point of bursting, he opens it largely, as much as possible in the direction of the folds of the neck. He then fills the cavity of the abscess, and covers the parts superficially with lint or tow dipped in a lotion composed of half methylated spirits and half water. He covers the whole with a piece of gutta-percha tissue, applies a bandage, and orders the dressing to be renewed morning and evening. He always obtains by this means a rapid union and a linear cicatrix.

EXTRACTS OF MEAT.—MM. Kemmerich and Müller, after making a series of experiments with the extracts of meat in alimentation, arrive at the following conclusions: the extracts of meat are not aliments directly, because they do not contain albuminoid materials; neither indirectly, because their nitro-

ogenous principles do not arrest disassimilation. In a small dose they may be useful by the stimulant action of the salts of potass. In stronger doses, instead of being useful, they produce an injurious effect. Given in the course of protracted illness, when the economy is weakened by prolonged abstinence, the salts of potass have an injurious effect; the more so, that the organism will have lost some of its chloride of sodium. So far from aiding nutrition, they hinder it by the direct action of the potass salts upon the (blood) globules, retarding the absorption of oxygen by the predominance in the serum of salts, which absorb the carbonic acid; also, by not permitting the exhalation of the normal amount of that gas, they prevent the admission of the normal amount of oxygen. (The Doctor.)

CROTON CHLORAL.—There appears to be a possibility that hydrate of chloral has seen its best days; for in some experiments of Liebreich he has produced a new substance, to which he gives the name of "croton chloral," and which is produced by conducting chlorine gas into allylene. It has the peculiar effect of producing at first a high degree of anæsthesia in the head, while sensibility in other parts of the body remains intact. Some experiments have been tried, and it promises to produce the good effects of hydrate of chloral, without any drawback to its judicious use. (*Ibid.*)

Notes and Queries.

A LUSUS NATURÆ.—Dr. Beauchamp, of Hamilton, Ohio, sends the following: “I have just seen and examined what I believe to be a *hermaphrodite*. The party is forty years old; claims to be a man, for he is married to a woman; is now under treatment for syphilis. The individual has a female pudendum, and a penis, covered with integument upon its lower surface, emerging from between the labi majora above, while below the labia meet together, forming a scrotum, in which are two testicles of adult size. The penis is cleft, from the base to its extremity, down to the site of the urethra, and that which should be a canal is simply an open gutter or trough. The membrane lining the urethra is continuous, with a vagina, which is readily seen by pulling the penis downward, and which is *above* and partly surrounds the latter. The vagina is normal, and quite three inches in length. It will be observed that that which represents the penis in this case can not be, as in many other cases of alleged hermaphrodism, an enlarged clitoris. Its position decides against such a supposition. The patient informed me that one of the testicles once slipped out of the scrotum into the vagina, and was replaced by a physician. How did this subject get syphilis? As man or as woman? The vagina would answer for copulation, but I can not think that the broad, cleft penis would be capable of intromission under the most favorable circumstances.”

We regret that Dr. Beauchamp does not state anything as to the form, features, voice, and general appearance of this offspring of Mercury and Venus. Then too is there a uterus?

Is there strong sexual desire, and for which sex? Is there any reason to believe there are ovaries present? Is there any periodical mucous or sanguineous flow per vaginam? A complete history of the case would be a most valuable contribution to *teratology*.

T. P.

CHLORAL CONTRA-INDICATED IN SURGICAL INJURIES AND OPERATIONS.—The following is furnished by Dr. Neill, of Philadelphia, formerly professor of surgery, etc.:

"A case came under my observation recently which so strongly illustrated a practical point in my mind that I thought it worth while to make a note of it for your valuable Practitioner. It may be that other cases of a similar kind have been recorded, and similar conclusions drawn. If this be so, my case will only serve to corroborate what is already known to others. If I was going to write an article instead of a note, I should head it *Chloral contraindicated in the Treatment of Surgical Shock*.

"Last spring I was called about ten miles from the city to visit, in consultation, a lad, about thirteen years of age, with a gun-shot wound. It occurred on Saturday morning, about eleven o'clock, by the accidental discharge of a shotgun at close range. The load passed into the right axilla, and a large portion of it passed directly through and escaped at the upper and back portion of the shoulder. The artery was not opened, but the venous hemorrhage was extremely profuse. I did not see him until the Tuesday following, at midnight. Upon the opening of the front door the odor was so offensive that it revealed, in advance of an examination, his real condition. I found a pallid boy, of light complexion and highly nervous temperament. Upon removing the sheet the whole arm was livid, and of a leaden and blueish hue, from the shoulder to the hand, and the skin was cold and covered with vibices. His pulse was so feeble and quick that it could not be estimated by the watch. He was nauseated

and loathed everything, and during twenty-four hours had not taken more than four ounces of fluid—nourishment and stimulants altogether. He rejected everything, particularly the chloral which had been administered to him to produce sleep and alleviate suffering.

“Of course the question of amputation could not be entertained; and as no reäction had taken place, although eighty-four hours had passed since the injury, and as no nourishment or stimulant could be borne upon the stomach, with an almost imperceptible pulse, and with the whole limb in a state of mortification, I expressed a most decidedly unfavorable prognosis. But why such a condition of things should exist in so short a time was not at all clear to my mind at first. The weather was not warm, the artery was not lacerated, the child was healthy and devoted to manly sports, and yet there was this prolonged and ghastly prostration and pulselessness, and mortification of the whole arm. I suspected the chloral, never having seen it used under such circumstances, and suggested its discontinuance and the administration of morphia. This produced some sleep and quieted the restlessness that night. I learned from the family that a little nourishment was borne the next day, and that the pulse had improved, and that day by day constant improvement took place, and the lad recovered, of course, with the loss of his arm.

“In conclusion let me say that, however much may be claimed for the use of chloral under such circumstances, I am convinced that it will never be a substitute for opium in the treatment of surgical injuries and operations.”

THE GERMAN WAR.—The martial spirit of the Germans is not confined, it seems, to the soldiers of that warlike people, nor are the battles fought alone on French soil. The magnates of our peaceful calling in Berlin are incising one another at a fearful rate. Langenbeck, Virchow, Martin, Frerichs, and others have taken the field. The *casus belli* was the appoint-

ment of Frerichs as Lehenrt's successor to the position of Director of the Science Deputation. Virchow has openly declared that Frerichs was not the proper person for the office. In commenting on this statement, the Vienna Medical Press says: "Such an expression from Virchow could only depend on facts, and these facts meet with confirmation when we reflect that Frerichs has done nothing in science, little or nothing in literature, for a very long time indeed, notwithstanding his various positions and his earlier labors. It is very well known that Frerichs has never been dearly loved as consulting physician, but there must be other reasons for this strong opposition against him, which will be disclosed, no doubt, with time." We trust that peace will soon reign in Berlin as well as Warsaw.

VACCINE VIRUS.—The recent alarm about small-pox, which has become so wide-spread, has created an unusual demand for vaccine virus. We are requested to state that Dr. Melvin Rhorer and Dr. J. Rademaker, dispensary physicians, are prepared to fill all orders promptly, and with perfectly pure and fresh virus. Price two dollars per crust.

HUMAN SKELETONS.—We have to refer such persons as have written to us to know where they can obtain prepared skeletons to Messrs. Otto & Reynders, 64 Chatham Street, New York, who have recently advised us that they have a large assortment on hand.

DIED—In Xenia, Ohio, December 25, 1871, of tuberculosis, Thomas B. Harbison, M. D., in the forty-fifth year of his age. All who know him regret his death.